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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,124	03/16/2004	Hector A. D' Auvergne	4359	4870

7590 09/22/2005

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EXAMINER

ELDRED, JOHN W

ART UNIT PAPER NUMBER

3644

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/803,124	Applicant(s) D' AUVERGNE, HECTOR A.	
	Examiner J. Woodrow Eldred	Art Unit 3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 6-26 and 28-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 and 33 is/are allowed.
- 6) ☒ Claim(s) 2, 3, 6-19, 22-26, 28-30, 32 is/are rejected.
- 7) ☒ Claim(s) 20, 21 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 30 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 30, "the leading edge portion" has no antecedent basis in the claims.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 6, 26, 28, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manfredi et al (3,437,285) in view of Earl (4,462,560), Hall (2003/0052232), and Cavanagh (6,216,599).

Manfredi et al disclose a method for launching a spacecraft comprising substantially all claimed steps, including providing a spacecraft with a rocket engine and a unitary belly assembly; providing a ground-based vehicle to support the spacecraft; and accelerating the ground-based vehicle to achieved aerodynamic takeoff speed for the spacecraft; and separating the spacecraft from the ground-based vehicle so that the spacecraft can use its rocket to achieve orbit. Manfredi et al fail to show the ground-based vehicle being powered, in particular by a turbojet. Manfredi et al also fail to show the spacecraft as having a lifting body or gliding back to earth. Earl teaches that it is well known to provide a power system (i.e. a fan jet or rocket engines) on a ground-based vehicle in order to provide the acceleration means to reach take-off speed for an aircraft. See

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especially column 1, lines 36-37 which teach that rocket engines can be mounted on the sled as “take-off assist means”, which would provide horizontal acceleration to the sled and spacecraft. as column 3, lines 27-37. Cavanagh teach that it is well known to substitute turbojets for fan jets or other engines in a ground support vehicle, and also teaches that it is known to use either the vertical support engines or additional engines as horizontal propulsion means for the ground support vehicle. See column 3, lines 23-40. Hall teaches that it is well known for spacecraft to have a lifting body, to glide back to earth, and to have vertical stabilizers on the outer end of its wings. See Figure 3, and paragraph 2. Motivation to combine is the mere substitution of known types of take-off support vehicles, including horizontal acceleration engines, to perform the same function and to substitute known types of spacecraft. To employ the teachings of Earl, Hall and Cavanagh on the launch method of Manfredi et al and have a turbojet powered ground-based vehicle and a returnable spacecraft with a lifting body and vertical stabilizers is considered to have been obvious to one having ordinary skill in the art.

5. Claims 3, 7-19, 22-24, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manfredi et al (3,437,285) in view of Earl (4,462,560), Hall (2003/0052232), and Cavanagh (6,216,599) as applied to claims 2, 6, 26-28, and 32 above, and further in view of NASA.

Manfredi et al and Hall fail to provide structural details of the spacecraft, such as the claimed spars, cross beams, thrust plate, liquid hydrogen fuel tanks, crew cockpit, or cargo bay. NASA provides the claimed structural elements. (Note that while the NASA reference was printed from the internet on 4-12-05, it contains an internal reference on the “Shuttle Reference Manual” page that it was revised in 1988, thus it is timely prior art.) Modification to the placement of some elements, without evidence of unexpected results, is not considered to provide unobvious or patentable limitations. Motivation to combine is the mere substitution of known structural details of a spacecraft in place of unidentified but required structural elements of the Hall spacecraft. To employ the teaching of NASA on the spacecraft of Hall and have the claimed structural details is considered to have been obvious to one having ordinary skill in the art.

6. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manfredi et al (3,437,285) in view of Earl (4,462,560), Hall (2003/0052232), Cavanagh (6,216,599), and NASA as applied to claims 3, 7-19, 22-24, 29 and 30 above, and further in view of Lewis (H80).

The previous references fail to show the liquid hydrogen fuel tank as having an expandable bladder. Lewis teaches that it is well known to use an expandable bladder in a liquid hydrogen fuel tank. See column 2, lines 15-34. Motivation to combine is the teaching that "in low gravity or negative gravity fields, cryogenic liquids need positive expulsion for controlled flow from the vessels within which they are stored." (See column 1, line 18.) To employ the teachings of Lewis on the system of Manfredi et al is considered to have obvious to one having ordinary skill in the art.

7. Claims 4 and 33 are allowed.

8. Claims 20, 21, and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

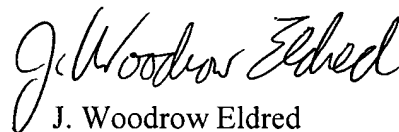
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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Woodrow Eldred whose telephone number is 571-272-6901.

The examiner can normally be reached on Monday to Thursday, from 8:00 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on 571-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J. Woodrow Eldred
Primary Examiner
Art Unit 3644

JWE